2008

Nebraska Summary: S622A Case-IH Magnum 190

Nebraska Tractor Test Laboratory
University of Nebraska-Lincoln, tractortestlab@unl.edu

SUMMARY OF OECD TEST 2425–NEBRASKA SUMMARY 622A
CASE IH PUMA 195 DIESEL
ALSO CASE IH MAGNUM 190 DIESEL
19 SPEED

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1022 rpm)					
171.2 *(127.7)*	2200	10.91 *(41.30)*	0.443 *(0.269)*	15.70 *(3.09)*	
Standard Power Take-off Speed (1000 rpm)					
178.4 *(133.0)*	2153	10.95 *(41.44)*	0.426 *(0.259)*	16.29 *(3.21)*	
Maximum Power (1 hour)					
189.4 *(141.2)*	1900	10.95 *(41.46)*	0.402 *(0.244)*	17.31 *(3.41)*	
VARYING POWER AND FUEL CONSUMPTION					
171.2 *(127.7)*	2200	10.91 *(41.30)*	0.442 *(0.269)*	15.70 *(3.09)*	Air temperature
149.7 *(111.6)*	2260	10.10 *(38.21)*	0.469 *(0.285)*	14.82 *(2.92)*	61°F *(16°C)*
113.5 *(84.6)*	2285	8.12 *(30.74)*	0.498 *(0.303)*	13.97 *(2.75)*	Relative humidity
76.7 *(57.2)*	2315	6.11 *(23.11)*	0.553 *(0.336)*	12.57 *(2.48)*	50%
38.6 *(28.8)*	2330	4.02 *(15.22)*	0.724 *(0.440)*	9.60 *(1.89)*	Barometer
-- --	2348	2.36 *(8.93)*	-- --	-- --	29.4" Hg *(99.7 kPa)*

Maximum Torque - 606.9 lb.-ft. *(822.8 Nm)* at 1400 rpm
Maximum Torque rise - 48.4%
Torque rise at 1800 engine rpm - 31%

DRAWBAR PERFORMANCE
(Unballasted - Front Drive Engaged)
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	Temp.°F *(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Power—9th Gear									
140.8 *(105.0)*	10995 *(48.90)*	4.80 *(7.73)*	2203	5.6	0.544 *(0.331)*	12.77 *(2.52)*	178 *(81)*	66 *(19)*	29.5 *(100.0)*
75% of Pull at Maximum Power—9th Gear									
110.8 *(82.6)*	8285 *(36.85)*	5.01 *(8.07)*	2264	4.0	0.606 *(0.369)*	11.47 *(2.26)*	179 *(82)*	68 *(20)*	29.5 *(100.0)*
50% of Pull at Maximum Power—9th Gear									
75.9 *(56.6)*	5555 *(24.71)*	5.12 *(8.24)*	2293	3.2	0.699 *(0.425)*	9.95 *(1.96)*	179 *(82)*	68 *(20)*	29.5 *(100.0)*
75% of Pull at Reduced Engine Speed—10th Gear									
113.6 *(84.7)*	8355 *(37.16)*	5.10 *(8.20)*	1920	4.4	0.543 *(0.330)*	12.80 *(2.52)*	176 *(80)*	66 *(19)*	29.6 *(100.1)*
50% of Pull at Reduced Engine Speed—10th Gear									
76.3 *(56.9)*	5540 *(24.65)*	5.16 *(8.31)*	1948	3.2	0.596 *(0.363)*	11.65 *(2.30)*	176 *(80)*	66 *(19)*	29.6 *(100.1)*

Location of tests: HBLFA Francisco Josephinum BLT Biomass-Logistics-Technology, Rottenhauser, StraBe, 1, AT, 3250, Wieselburg, Austria

Dates of tests: May - July, 2007.

Manufacturer: CNH Osterreich GmbH SteyrerstraBe, 32, 4300, St. Valentin, Austria

FUEL and OIL: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.835 **Fuel weight** 6.95 lbs/gal *(0.833 kg/l)* **Oil SAE** 10W30 **API service classification** CG-4 **Transmission and hydraulic lubricant** Case IH Hytran Ultra fluid **Front axle lubricant** Case IH Hytran Ultra fluid

ENGINE: Make CNH Diesel **Type** six cylinder vertical with turbocharger and air to air intercooler **Serial No.** 374028 **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.094" x 5.197" *(104.0 mm x 132.0 mm)* **Compression ratio** 16.5 to 1 **Displacement** 410 cu in *(6728 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper canisters **Muffler** underhood **Exhaust** vertical **Cooling medium temperature control** thermostat and variable speed fan

CHASSIS: Type front wheel assist **Serial No.** Z7BH01013 **Tread width** rear 60.2" *(1530 mm)* to 87.8" *(2230 mm)* front 61.4" *(1560 mm)* to 89.0" *(2260 mm)* **Wheelbase** 113.5" (*2884 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio with full range operator controlled powershift **Nominal travel speeds mph *(km/h)*** first 1.21 *(1.94)* second 1.45 *(2.33)* third 1.74 *(2.80)* fourth 2.09 *(3.36)* fifth 2.52 *(4.05)* sixth 3.03 *(4.87)* seventh 3.49 *(5.62)* eighth 4.20 *(6.76)* ninth 5.05 *(8.12)* tenth 6.06 *(9.76)* eleventh 7.30 *(11.75)* twelfth 8.78 *(14.13)* thirteenth 10.09 (*16.24)* fourteenth 12.13 *(19.52)* fifteenth 14.57 *(23.45)* sixteenth 17.52 *(28.20)* seventeenth 21.08 *(33.92)* eighteenth 25.35 *(40.79)* nineteenth 25.35 *(40.80)* (1700 engine rpm) reverse 2.67 *(4.30)*, 3.21 *(5.16)*, 3.85 *(6.20)*, 4.63 *(7.45)*, 5.57 *(8.96)*, 6.70 *(10.78)* **Clutch** multiple wet disc electro-hydraulically operated by foot pedal **Brakes** wet disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1950 engine rpm or 1000 rpm at 2154 engine rpm **Unladen tractor mass** 17635 lb *(8000kg)*

DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					6th Gear				
117.3 *(87.5)*	16560 *(73.67)*	2.66 *(4.28)*	2247	14.6	0.646 *(0.393)*	10.76 *(2.12)*	178 *(81)*	68 *(20)*	29.4 *(99.6)*
					7th Gear				
132.8 *(99.0)*	16455 *(73.20)*	3.03 *(4.87)*	2190	13.1	0.567 *(0.345)*	12.26 *(2.42)*	180 *(82)*	68 *(20)*	29.4 *(99.6)*
					8th Gear				
144.4 *(107.7)*	16535 *(73.55)*	3.27 *(5.27)*	1962	13.0	0.529 *(0.322)*	13.15 *(2.59)*	180 *(82)*	68 *(20)*	29.4 *(99.6)*
					9th Gear				
152.1 *(113.4)*	14220 *(63.25)*	4.01 *(6.45)*	1900	8.8	0.501 *(0.305)*	13.88 *(2.74)*	181 *(83)*	68 *(20)*	29.4 *(99.5)*
					10th Gear				
153.7 *(114.6)*	11610 *(51.65)*	4.96 *(7.99)*	1908	6.5	0.496 *(0.302)*	14.01 *(2.76)*	180 *(82)*	68 *(20)*	29.4 *(99.5)*
					11th Gear				
152.9 *(114.0)*	9530 *(42.40)*	6.02 *(9.68)*	1902	5.5	0.498 *(0.303)*	13.96 *(2.75)*	180 *(82)*	68 *(20)*	29.4 *(99.5)*
					12th Gear				
151.8 *(113.2)*	7790 *(34.65)*	7.31 *(11.76)*	1902	4.5	0.503 *(0.306)*	13.81 *(2.72)*	180 *(82)*	68 *(20)*	29.4 *(99.5)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The data on this summary was obtained from OECD report 2424 conducted on the New Holland T7050 Diesel.

NOTE 2: Report reissued, supplemental for Magnum 190 Diesel,November, 2009.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's claim 35.7 gpm *(135 lpm)* remote hydraulic flow. The performance figures on this summary were taken from a test conducted under the OECD Code II test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2425** Nebraska Summary 622A, November 29, 2009.

Roger M. Hoy
Director

M.F. Kocher
V.I. Adamchuk
J.A. Smith
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive Disengaged dB(A)	Engaged dB(A)
At no load in 8th gear	70.0	70.0
Bystander	--	--

TIRES, BALLAST AND WEIGHT	Tested without ballast
Rear Tires - No., size, ply & psi*(kPa)*	Two 710/70R38;**;15*(100)*
Front Tires - No., size, ply & psi*(kPa)*	Two 600/65R28;**;15*(100)*
Height of Drawbar	24.0 in *(610 mm)*
Static Weight with operator - Rear	10990 lb *(4985 kg)*
- Front	6815 lb *(3090 kg)*
- Total	17805 lb *(8075 kg)*

This vehicle is equipped with an electronically controlled engine Power management system that monitors and boosts engine power output in certain circumstances. This is achieved by electronically changing the characteristics of the engine power-speed curve. The engine Power management function ("boosted" power level) becomes active in the higher transmission gears (16th and above) and for road transport applications. The system is also activated when power transfer through the PTO exceeds a preset level (and forward speed exceeds 0.5 km/h), for mobile PTO driven implement applications. An overide system is provided to enable PTO operations at the "boosted" power level while the vehicle is stationary for test purposes. The results of this PTO output test are presented below.

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1022 rpm)					
198.7 *(148.2)*	2200	12.34 *(46.70)*	0.431 *(0.262)*	16.11 *(3.17)*	
Standard Power Take-off Speed - (1000 rpm)					
202.5 *(151.0)*	2153	12.44 *(47.08)*	0.427 *(0.259)*	16.28 *(3.21)*	
Maximum Power (1 hour)					
215.4 *(160.6)*	1900	12.36 *(46.81)*	0.399 *(0.243)*	17.42 *(3.43)*	
VARYING POWER AND FUEL CONSUMPTION					
198.7 *(148.2)*	2200	12.34 *(46.70)*	0.431 *(0.262)*	16.11 *(3.17)*	Air temperature
172.1 *(128.3)*	2240	11.13 *(42.13)*	0.449 *(0.273)*	15.47 *(3.05)*	68°F *(20°C)*
130.6 *(97.4)*	2270	9.21 *(34.85)*	0.490 *(0.298)*	14.19 *(2.79)*	Relative humidity
88.6 *(66.1)*	2305	6.89 *(26.08)*	0.540 *(0.329)*	12.84 *(2.53)*	47%
44.7 *(33.3)*	2330	4.41 *(16.68)*	0.685 *(0.417)*	10.14 *(2.00)*	Barometer
-- --	2348	2.36 *(8.93)*	-- --	-- --	29.5"Hg *(100.0 kPa)*

Maximum Torque 651.0 lb.-ft. *(882.6 Nm)* at 1600 rpm
Maximum Torque Rise - 37.2%
Torque rise at 1800 rpm - 32%

HYDRAULIC PERFORMANCE

CATEGORY: IIIN
Quick Attach: No
OECD Static test

	Lift cylinders
Maximum force exerted through whole range:	10275 lbs *(45.7 kN)* (2x90 mm)
	13490 lbs *(60.0 kN)* (2x100 mm)
i) Sustained pressure at compensator cutoff:	3175 psi *(219 bar)*
	two outlet sets combined
ii) Pump delivery rate at minimum pressure:	35.6 GPM *(134.8 l/min)*
iii)Pump delivery rate at maximum	
hydraulic power:	33.0 GPM *(125.0 l/min)*
Delivery pressure:	2685 psi *(185 bar)*
Power:	51.7 HP *(38.5 kW)*
	single outlet set
ii) Pump delivery rate at minimum pressure:	26.0 GPM *(98.5 l/min)*
iii)Pump delivery rate at maximum	
hydraulic power:	25.6 GPM *(96.8 l/min)*
Delivery pressure:	2540 psi *(175 bar)*
Power:	37.9 HP *(28.2 kW)*

THREE POINT HITCH PERFORMANCE(SAE Static test)

Observed Maximum Pressure psi.*(bar)*	3175 *(219)*
Location:	lift cylinder
Hydraulic oil temperature: °F *(°C)*	150 *(65)*
Location:	hydraulic sump
Category:	IIIN
Quick attach:	none

System pressure 2865 psi *(197 Bar)* Lift cylinders - 2 x 90 mm

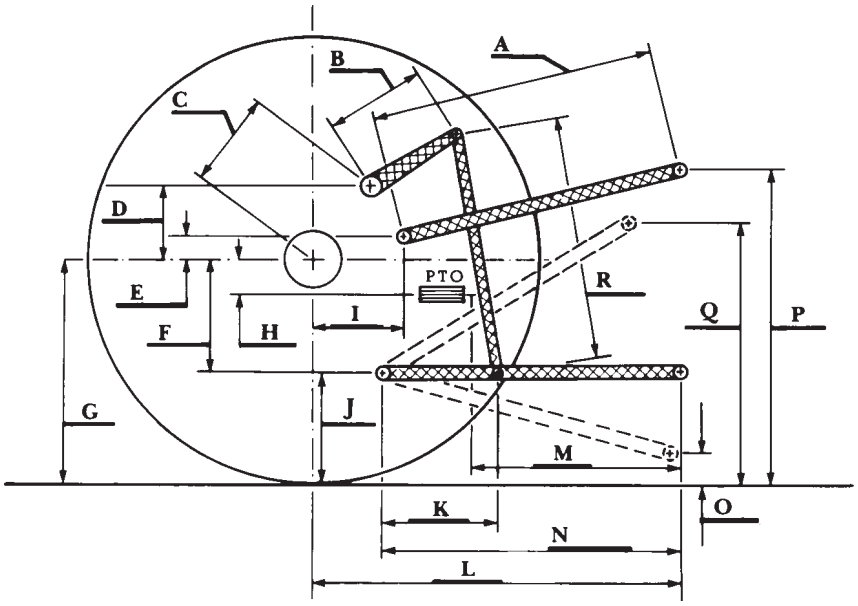
Hitch point distance to ground level in. *(mm)*	19.7 *(500)*	21.9 *(555)*	25.8 *(655)*	33.7 *(855)*	45.3 *(1150)*
Lift force on frame lb	13195	13155	13195	13080	11690
" " " " " " *(kN)*	*(58.7)*	*(58.5)*	*(58.7)*	*(58.2)*	*(52.0)*

System pressure 2865 psi *(197 Bar)* Lift cylinders - 2 x 100 mm

Hitch point distance to ground level in. *(mm)*	19.7 *(500)*	21.9 *(555)*	25.8 *(655)*	35.8 *(910)*	45.3 *(1150)*
Lift force on frame lb	14930	15015	15175	15150	14230
" " " " " " *(kN)*	*(66.4)*	*(66.8)*	*(67.5)*	*(67.4)*	*(63.3)*

HITCH DIMENSIONS AS TESTED—NO LOAD

	OECD test		SAE test	
	inch	*mm*	inch	*mm*
A	31.9	*810*	31.7	*805*
B	15.0	*380*	15.0	*380*
C	15.1	*383*	15.1	*383*
D	14.6	*372*	14.6	*372*
E	10.9	*277*	10.9	*277*
F	10.6	*270*	10.6	*270*
G	36.4	*925*	36.4	*925*
H	2.4	*60*	2.4	*60*
I	19.7	*440*	19.7	*440*
J	25.8	*655*	25.8	*655*
K	26.9	*682*	26.9	*682*
L	48.2	*1224*	48.2	*1224*
M	23.1	*587*	23.1	*587*
N	38.3	*974*	38.3	*974*
O	9.0	*230*	16.9	*430*
P	52.8	*1340*	47.8	*1214*
Q	39.4	*1000*	45.3	*1150*
R	38.8	*985*	34.4	*875*



Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln